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EXAMINER	
GREENE, JOSEPH L	
ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/827,155	SHAH ET AL.	
	Examiner	Art Unit	
	JOSEPH L. GREENE	2451	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 July 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1 – 18 are currently pending in this application.

2. Claims 1, 5-6, 8, and 13-14 are amended as filed on 07/22/2008.

Claim Objections

3. The following claims are objected to for containing a lack of antecedent basis.

(a) Claims 12 and 18 contain the limitations "the frequency offset message" and "the offset word."

(b) Claims 10 and 16 contain the limitation "the communication device."

(c) Claim 15 contains the limitation, "the frequency offset word."

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-4 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dapper et al. (Pre-Grant Publication No. US 2001/0032334 A1), hereinafter Dapper, in view of Quigley et al (Pre-Grant Publication No. US 2001/0055319 A1), hereinafter Quigley.

6. With respect to claim 1, Dapper disclosed a method for increasing the ranging offset resolution/accuracy of a communication device (0027, lines 1-5) attempting to adjust its upstream frequency to which it is currently tuned (0308, lines 1-4) to match a desired frequency, comprising: determining a frequency offset (0317, lines 1-6) based on the difference between the actual currently tuned frequency (0319, lines 8-19, where the downstream frequency is the actual currently tuned frequency; 0318, lines 1-3, this shows that the ISU frequency is the same as the HDT frequency that is producing the downstream frequency) and the desired frequency (0319. lines 8-12, where the desired frequency is present. Otherwise there would be random frequency offsets and the device would not match each other).

Dapper also disclosed digitizing the frequency offset into a frequency offset word (0317, lines 13-16, this shows digitizing the data; 0463, lines 1-7, this shows that the data is stored as words); and tuning the communication device by adjusting the actual currently tuned frequency by an amount corresponding to the digitized frequency offset word (0308, lines 1-4, this shows the frequency being adjusted. It has already been previously shown that the data is stored as words), so that the newly tuned actual frequency is the previously tuned actual frequency plus or minus the value of the digitized frequency offset word (0319, lines 12-19, where the ISU transmitted signal is the previously tuned frequency offset word).

However, Dapper did not explicitly state that the offset value was an absolute value. On the other hand, Quigley did teach that the offset value was an absolute value

(0304, lines 5-11). Both the systems of Dapper and Quigley are directed towards optimizing communication between a cable modem termination system and a cable modem and therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teachings of Dapper in order to use absolute values, as taught by Quigley, as using an absolute value or a regular value to represent the offset is a matter of preference in programming/system setup style.

7. As for claim 2, the combination of Dapper and Quigley taught all of the limitations described in claim 1. In addition, Dapper taught wherein the frequency offset word is applied to a currently tuned frequency word (0317, lines13-16 and 0463, lines 1-7).

8. As for claim 3, the combination of Dapper and Quigley taught all of the limitations described in claim 2. In addition, Dapper taught wherein the currently tuned frequency word resides in the communication device (0316, lines 1-4).

9. As for claim 4, the combination of Dapper and Quigley taught all of the limitations described in claim 1. In addition, Dapper taught wherein the communication device is a cable modem (0537, lines 1-6).

10. As for claim 7, the combination of Dapper and Quigley taught all of the limitations described in claim 1. In addition, Dapper taught wherein the desired frequency is a new frequency with respect to a most recently commanded frequency (0319, lines 8-19).

11. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dapper, in view of Quigley, as applied to claim 1 above, and in further view of Wang et al. (Pre-Grant Publication No. US 2003/0215011 A1), hereinafter Wang.

12. As for claim 5, the combination of Dapper and Quigley taught wherein digitizing the frequency offset results in truncation, or quantization error (0533, lines 6-15), but Dapper did not explicitly state wherein the truncation error is stored. However, Wang did teach the truncation error being stored (0294, lines 37-38). The systems of Dapper, Quigley, and Wang are all directed towards manipulating the transfer of data in order to increase performance/efficiency and therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teaching of Dapper in order to store truncation errors, as taught by Wang. In doing so, the accuracy of the frequency adjustments would be increased by keeping track of the truncations that have occurred.

13. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dapper, in view of Quigley, in view of Wang, and in further view of Applicant's Admitted Prior-Art, hereinafter AAPA.

14. As for claim 6, it is rejected on the same basis as claim 5 above. The combination of Dapper and Wang do not disclose wherein the stored truncation error is used to facilitate generating the frequency offset message if the frequency offset word is

to be applied to the currently commanded frequency instead of the actual frequency. However, AAPA taught wherein the stored truncation error is used to facilitate generating the frequency offset message if the offset word is to be applied to the currently commanded frequency instead of the actual frequency (0003, lines 10-14, 0008, lines 1-6). It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teachings of Dapper, Quigley, and Wang, in order to generate a frequency offset message, as taught by AAPA in order to have a simple and easy protocol to allow the devices to communicate frequency adjustments.

15. Claims 11-12 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dapper, in view of AAPA, and in further view of Wang.

16. As for claim 11, it is rejected on the same basis as claim 8 above. In addition, Dapper taught wherein digitizing the frequency offset results in truncation, or quantization error (0533, lines 6-15), but Dapper did not explicitly state wherein the truncation error is stored. However, Wang did teach the truncation error being stored (0294, lines 37-38). It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teaching of Dapper in order to store truncation errors, as taught by Wang. In doing so, the accuracy of the frequency adjustments would be increased by keeping track the truncations that have occurred.

17. As for claim 12, it is rejected on the same basis as claim 11 above. In addition, AAPA taught wherein the stored truncation error is used to facilitate generating the frequency offset message if the offset word is to be applied to the currently commanded frequency instead of the actual frequency (0003, lines 10-14). It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teachings of Dapper, AAPA, and Wang, in order to generate a frequency offset message, as taught by AAPA in order to have a simple and easy protocol to allow the devices to communicate frequency adjustments. Furthermore, even though the use of a frequency offset message is not directly disclosed, it is most likely used in the system to communicate frequency adjustments.

18. As for claim 17, it is rejected on the same basis as claim 14 above. In addition, Dapper taught wherein digitizing the frequency offset results in truncation, or quantization error (0533, lines 6-15), but Dapper did not explicitly state wherein the truncation error is stored. However, Wang did teach the truncation error being stored (0294, lines 37-38). It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teaching of Dapper in order to store truncation errors, as taught by Wang. In doing so, the accuracy of the frequency adjustments would be increased by keeping track the truncations that have occurred.

19. As for claim 18, it is rejected on the same basis as claim 17 above. In addition, AAPA taught wherein the stored truncation error is used to facilitate generating the

frequency offset message if the offset word is to be applied to the currently commanded frequency instead of the actual frequency (0003, lines 10-14). It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teachings of Dapper and Wang, in order to generate a frequency offset message, as taught by AAPA in order to have a simple and easy protocol to allow the devices to communicate frequency adjustments. Furthermore, even though the use of a frequency offset message is not directly disclosed, it is most likely used in the system to communicate frequency adjustments.

20. Claims 8-10 and 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dapper, in view of AAPA.

21. With respect to claim 8, Dapper taught a method for increasing the ranging offset resolution/accuracy (0027, lines 1-5) of a cable modem (0537, lines 1-6) attempting to adjust its upstream frequency to which it is currently tuned (0308, lines 1-4) to match a desired frequency, comprising: determining the frequency offset (0317, lines 1-6) based on the difference between the actual currently tuned frequency (0319, lines 8-19, where the downstream frequency is the actual currently tuned frequency; 0318, lines 1-3, this shows that the ISU frequency is the same as the HDT frequency that is producing the downstream frequency) and the desired frequency (0319. lines 8-12, where the desired frequency is present. Otherwise there would be random frequency offsets and the device would not match each other); digitizing the frequency offset into a frequency

offset word (0317, lines 13-16, this shows digitizing the data; 0463, lines 1-7, this shows that the data is stored as words); and tuning the cable modem by adjusting the actual currently tuned frequency by the frequency value corresponding to the frequency offset word (0308, lines 1-4, this shows the frequency being adjusted. It has already been previously shown that the data is stored as words).

Conversely, Dapper did not explicitly state determining, at a CMTS, the actual upstream transmission frequency of the cable modem. However, AAPA did teach determining, at a CMTS, the actual upstream transmission frequency of the cable modem (0008, lines 1-6). It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teachings of Dapper, in order to determine frequency offsets at the CMTS, as taught by AAPA, doing so would improve the efficiency of the system by accurately determining the upstream frequency.

22. As for claim 9, it is rejected on the same basis as claim 8 above. In addition, Dapper taught wherein the frequency offset word is applied to a currently tuned frequency word (031713-16 and 0463, lines 1-7).

23. As for claim 10, it is rejected on the same basis as claim 9 above. In addition, Dapper taught wherein the currently tuned frequency word resides in the communication device (0316, lines 1-4).

24. With respect to claim 13, Dapper taught a method for reducing the upstream tuning error (0027, lines 1-5) of a cable modem (0537, lines 1-6), the method comprising updating a software load of the cable modem with software that includes steps for adjusting the current upstream carrier frequency of the modem (0247, lines 7-12, where all of the operations of the system are being carried out by the software) such that the actual adjusted frequency tuned to, based on the ranging frequency offset, is bounded by only one truncation error instead of two with respect to the desired frequency (0319, lines 8-19, where the downstream frequency is the actual currently tuned frequency; 0318, lines 1-3, this shows that the ISU frequency is the same as the HDT frequency that is producing the downstream frequency. Furthermore, even though Dapper doesn't directly disclose having only one truncation error, he does express that his system is designed to have high accuracy 0027, lines 1-5 and the steps that are taking place in the applicant's system for decreasing the truncation error are taking place in Dapper's system as well with respect to the rejections that have already been made).

On the other hand, Dapper did not explicitly state receiving a ranging frequency offset from a CMTS. However, AAPA did teach receiving a ranging frequency offset from a CMTS (0008, lines 1-6). It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teachings of Dapper, in order to determine frequency offsets at the CMTS, as taught by AAPA, doing so would improve the efficiency of the system by taking the burden of frequency calculations away from the cable modem device that already contains a fair load of work.

25. As for claim 14, it is rejected on the same basis as claim 13 above. In addition, Dapper taught wherein the updated software load further comprises: a frequency offset (0317, lines 1-6) based on the difference between the actual currently tuned frequency (0319, lines 8-19, where the downstream frequency is the actual currently tuned frequency; 0318, lines 1-3, this shows that the ISU frequency is the same as the HDT frequency that is producing the downstream frequency) and the desired frequency (0319. lines 8-12, where the desired frequency is present. Otherwise there would be random frequency offsets and the device would not match each other); digitizing the frequency offset into a frequency offset word (0317, lines 13-16, this shows digitizing the data; 0463, lines 1-7, this shows that the data is stored as words); and tuning the device by adjusting the actual currently tuned frequency by the frequency value corresponding to the frequency offset word (0308, lines 1-4, this shows the frequency being adjusted. It has already been previously shown that the data is stored as words).

Conversely, Dapper did not explicitly state determining at a CMTS the actual upstream transmission frequency of the cable modem. However, AAPA did teach determining, at a CMTS, the actual upstream transmission frequency of the cable modem (0008, lines 1-6). It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the teachings of Dapper, in order to determine frequency offsets at the CMTS, as taught by AAPA, doing so would improve the efficiency of the system by taking the burden of frequency calculations away from the cable modem device that already contains a fair load of work.

26. As for claim 15, it is rejected on the same basis as claim13 above. In addition, Dapper taught wherein the ranging frequency offset word is applied to a currently tuned frequency word (031713-16 and 0463, lines 1-7).

27. As for claim 16, it is rejected on the same basis as claim 15 above. In addition, Dapper taught wherein the currently tuned frequency word resides in the communication device (0316, lines 1-4).

Response to Arguments

28. Applicant's arguments filed 07/22/2008 have been fully considered but they are not persuasive.

29. The examiner has made an inadvertent error with respect to the listing of the header for claims 8 and 13 being dependent on Dapper, in view of Wang, and in further view of AAPA. The header has been corrected to read Dapper, in view of AAPA. The actual material in the rejection remains unchanged as limitations taught by Wang were never introduced into the rejection, but rather, the rejection header was mislabeled. Furthermore, the dependent claims from 8 and 13 (respectively), have been appropriately adjusted as well.

30. With respect to claim 1, the applicant argues, on page 10, that "**Dapper does not discuss an error that is based on a resolution error imposed by the number of bits in a frequency instruction word. In making an obviousness rejection, which is addressed in the next section herein, Examiner stated that section [0533] discloses quantizing error. Whatever section [0533] does disclose, it does not disclose that that frequency instruction value is quantized into a frequency offset word.**" As an explanation, 0533 was demonstrating that digital steps that the system uses to perform its calculations and thus show the inherent nature of the data being stored digitally. However, for more clarity, the applicant can view section 0319, lines 15-19 to show that the data is being stored digitally. Furthermore, as one skilled in the art is aware, digital data is stored in word blocks that range in bit capacity depending on the design of the microprocessor/microcontroller.

31. The applicant also argues, on page 10, that "**Dapper does not disclose basing a frequency offset word on an actual tuned frequency rather than a difference between local mixer oscillator frequencies at the HDT and ISU. Therefore, Dapper cannot disclose adjusting the tuned frequency by a value corresponding to a frequency offset word.**" However, section 0319, lines 9-19, clearly shows, as per the claim language, "**adjusting the actual currently tuned frequency by an amount corresponding to the digitized frequency offset word,**" where it can be seen that the ISU transmitted signal is a currently tuned frequency and it is adjusted by the digitized frequency offset.

32. The applicant further argues, on page 12, that the "**applicant does not accept Examiner's characterization of discussion in the Background section of the present application as prior art. Disagreement as to characterization notwithstanding, the section cited by Examiner in the Background of the present application states that the current method used in the art applies a frequency offset AF to the currently desired, or commanded, frequency**." However, for more clarity on the use of AAPA, to show using the stored truncation error, it can be seen in the applicant's background section that the truncation error is based off of the frequency stored in the UCD (sections 0003, lines 10-14 and 0007, lines 4-10). If the error is calculated by the digitized difference of the frequency stored in the UCD, then by definition, that truncation error was stored, as it exists within the data value that is being relied upon.

Conclusion

33. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSEPH L. GREENE whose telephone number is (571)270-3730. The examiner can normally be reached on Monday - Thursday from 9:00 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Follansbee can be reached on (571) 272-3964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JLG

/John Follansbee/

Supervisory Patent Examiner, Art Unit 2151